

Survival of Proximal Third Gastric Carcinoma

JAN WILLEM H. LARDENOYE, MD,* A. PIETER KAPPETEIN, MD, PhD,
MICHIEL B. LAGAAY, MD, PhD, JAN H. ALLEMA, MD, PhD, AND PAUL J. BRESLAU, MD, PhD
Department of Surgery, Rode Kruis Ziekenhuis, Den Haag, The Netherlands

Background and Objectives: Proximal third gastric carcinoma is a distinct clinical entity compared with tumors located in other parts of the stomach with a rapid increasing incidence and a poor prognosis. This study was done to evaluate therapy for, and survival of, patients with gastric cardia carcinoma.

Methods: Clinical features and prognosis of 49 patients with proximal third gastric carcinoma between 1985 and 1995 (mean age 69.7 years) were evaluated.

Results: In 20 of the 49 patients, laparotomy was excluded because of widespread disease and/or poor clinical condition at presentation. Palliative therapy consisted of gastric tube implantation ($n = 4$), dilation ($n = 3$), or radiotherapy ($n = 4$). In 9 patients, no specific palliative therapy was indicated. Twenty-nine patients underwent laparotomy (59%). In 13 patients, a total gastrectomy with esophagojejunostomy was performed, and in 7 patients a partial gastrectomy was performed. In 9 cases, the tumor was irresectable. In 8 of these 9 patients, a Celestin tube was implanted. Median survival in all patients was 7 months and the expected probability of survival after 50 months was zero. The median survival of patients who underwent a resection was significantly better than in those in whom no resection was performed (23 vs. 4 months, $P = 0.047$).

Conclusions: We conclude that long-term survival of patients with proximal third gastric carcinoma is poor. However, long-term survival may be best warranted when patients present at an early stage and resection can be performed. *J. Surg. Oncol.* 1998;68:183–186. © 1998 Wiley-Liss, Inc.

KEY WORDS: cardia carcinoma; esophagojejunostomy; proximal gastrectomy

INTRODUCTION

The incidence of gastric cancer has been declining in Western Europe throughout the past few decades [1,2]. Epidemiologic studies, however, indicate a continuing rise in prevalence of proximal third gastric cancer [3]. The prognosis of patients with this type of cancer is worse compared with more distally located gastric tumors. Enhanced diagnostic techniques, better intraoperative and postoperative care have improved operative results for patients with a carcinoma of the stomach, but for patients with a carcinoma of the proximal third part of the stomach surgical results are still unsatisfactory [1,2,4].

Only a few studies describe follow-up of patients with proximal third gastric carcinoma as a distinct clinical entity. Many reports include both patients with proximal third gastric carcinoma and patients with esophageal cancer or cancer located more distally in the stomach. This paper presents therapy for, and long-term follow-up of, all patients diagnosed with carcinoma of gastric cardia during the period 1985–1995 at our hospital.

*Correspondence to: Jan Willem H. Lardenoye, MD, Department of Surgery, Rode Kruis Ziekenhuis, P.O. Box 60605, 2506 LP Den Haag, The Netherlands. Fax No. : (31)70-312-6167.

Accepted 14 March 1998

TABLE I. Proximal Third Gastric Carcinoma: Patient Characteristics

	n = 49	%
Male sex	36	74
Mean age	70	
range	39—84	
Presenting symptoms		
Dysphagia	34	69
weight loss	30	61
pain in epigastrio	25	51
hematemesis	1	2
melena	6	12
Physical examination		
Cachexia	6	12
Tumor in epigastrio	5	10
Palpable lymph nodes	5	10
Pain on palpation	5	10

PATIENTS AND METHODS

A follow-up study of 49 patients who presented with proximal third gastric carcinoma between June 1985 and June 1995 in the Red Cross Hospital, The Hague, The Netherlands, was undertaken.

We defined proximal third gastric carcinoma as a tumor whose center lies within the proximal third of the stomach [5]. All patients underwent a radiographic contrast examination, esophagogastrosocopy, and endoscopic biopsy. Computed tomography (CT) was employed to detect distant metastases. From the results of these investigations, the type and extent of malignancy were determined. In patients with poor clinical condition or distant metastases, operation was restrained. All other patients underwent a laparotomy, and resectability was assessed. A resection was not performed if widespread infiltration of adjacent organs or diffuse peritoneal carcinomatosis was found. If the lesion was located only in the upper third of the stomach, a proximal gastrectomy was performed. For lesions extending to the middle and distal parts of the stomach a total gastrectomy was performed, followed by esophagojejunostomy.

Statistical Analysis

Differences in survival were analyzed using the Kaplan-Meier method. Data on surviving patients were censored on the date of the last follow-up visit. The differences between groups were assessed using the log-rank test. The 5-year survival rates include operative deaths. *P*-values were based on a one-tailed test and were regarded as significant at *P* < 0.05.

RESULTS

A total of 49 patients was diagnosed with proximal third gastric carcinoma. The characteristics of these patients are presented in Table I. Dysphagia was the predominant symptom (34 patients, 69%). Physical exami-

TABLE II. Proximal Third Gastric Carcinoma: Therapy

	n = 49	%
No laparotomy		
Celestin tube per scope	4	8
Dilation	3	6
Radiotherapy	4	8
No therapy	<u>9</u>	<u>18</u>
	20	41
Laparotomy		
Esophagojejunostomy	13	27
Proximal gastrectomy	7	14
Celestin tube	8	16
No therapy	<u>1</u>	<u>2</u>
	29	59

nation at the time of diagnosis revealed no pathognomonic findings (Table I). Histological analysis of endoscopic biopsies revealed adenocarcinoma in 48 patients and colloid cell carcinoma in one.

In 29 patients (59%), a laparotomy was performed. In 20 of these 29 patients, resection was carried out. In 7 patients, a partial gastrectomy and in 13 patients a total gastrectomy with esophagojejunostomy was performed. In 9 of these 29 patients, the tumor proved to be irresectable at surgery. In 8 of these 9 patients, a gastric tube was implanted. In one patient, no further locoregional therapy was applied because no obstruction was present. Twenty of the 49 patients (41%) did not undergo surgery because of widespread infiltration of tumor in adjacent organs, peritoneal carcinomatosis, or poor clinical condition. Eleven of these 20 patients underwent palliative therapy consisting of: gastric tube implantation (*n* = 4), dilation (*n* = 3), or radiotherapy (*n* = 4). In 9 patients, no specific locoregional palliative therapy was indicated.

Figure 1 shows the poor prognosis of patients after diagnosis of proximal third gastric carcinoma with a median survival of 7 months and an expected probability of survival 50 months after diagnosis equal to zero. The median survival in patients who underwent resection of the tumor was significantly better (22 months, *P* = 0.048) than in patients in whom no resection could be performed (7 months). No significant difference in survival was observed between patients in whom no resection could be performed and in whom laparotomy was excluded because of widespread disease or poor clinical condition, or both, at clinical presentation.

In our population, 16 of the 29 operated patients (55%) showed transmural growth and infiltration of perigastric fat. Thirteen patients (45%) were found to have positive lymph nodes, and in six patients distant metastases were found.

A multivariate Cox proportional hazard analysis identified that patients with distant metastases had a significantly poorer survival with a relative mortality risk of 2.4 (*P* = 0.028). It proved that lymph node involvement (RR

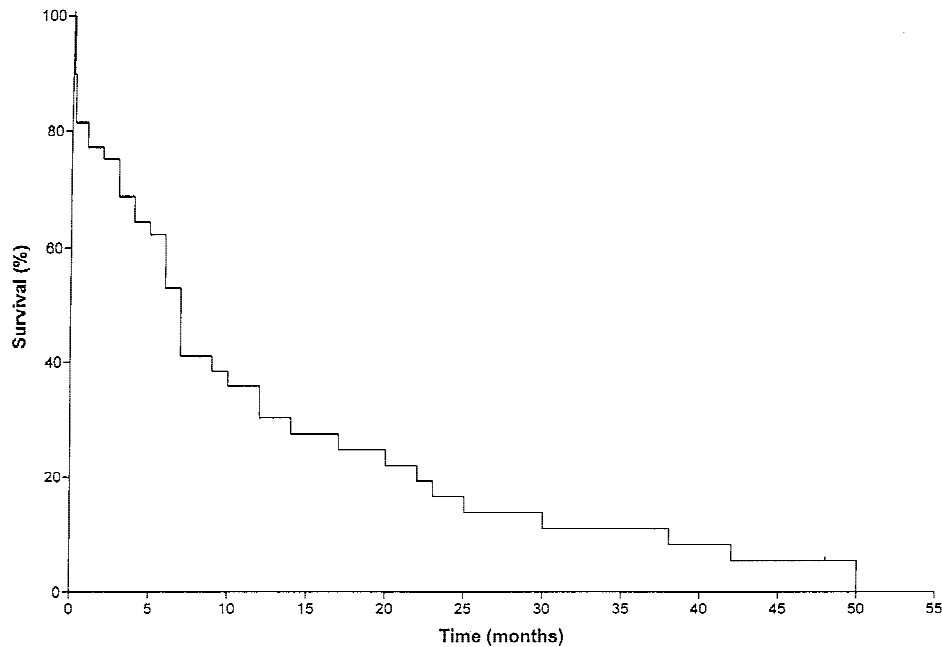


Fig. 1. Kaplan-Meier curve showing survival of all patients after diagnosis of carcinoma of the gastric cardia.

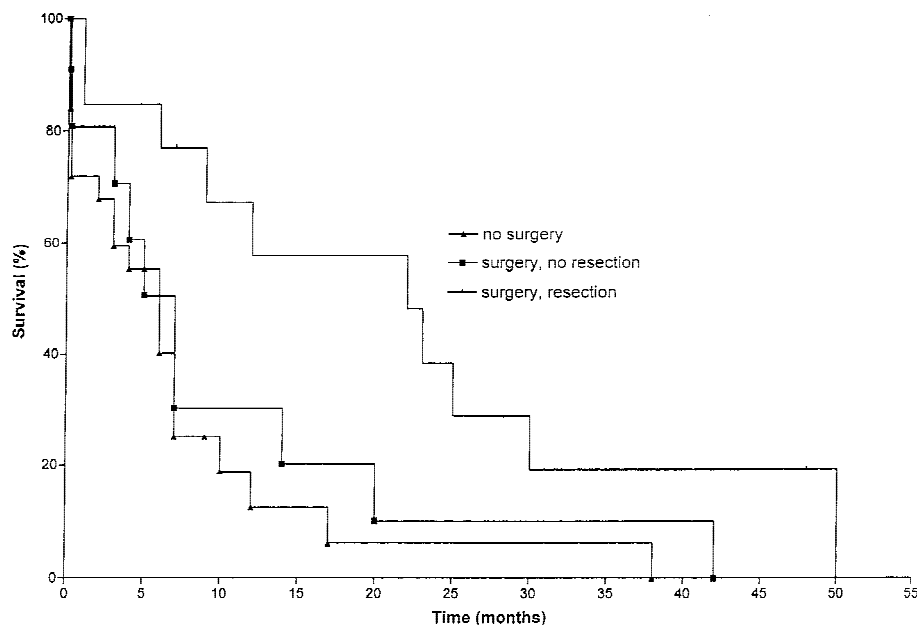


Fig. 2. Kaplan-Meier curve showing difference in survival of patients who underwent resection of proximal third gastric carcinoma, patients who underwent surgery but in whom no resection could be performed, and patients who did not undergo surgery.

1.8, $P = 0.21$) and age (RR 1.02, $P = 0.56$) were not significant predictive factors.

DISCUSSION

Proximal third gastric carcinoma has rapidly increased in prevalence in the Western world [1,2,6,7], and the prognosis of patients with proximal third gastric cancer is

worse than in patients with more distally located gastric tumors [1,2,4]. The literature shows an overall 5-year survival of patients with proximal third carcinoma ranging from 0% to 13% [8–10]. Our study showed an extremely poor prognosis. In patients with palliative treatment as well as in patients who underwent surgical eradication with resection of adjacent lymph nodes, the probability of 5-year survival was zero, implying that

curative treatment could not be achieved in this group of patients.

Patients with proximal third gastric carcinoma present at a late stage because symptoms and signs associated with these tumors occur late and are nonpathognomonic [5]. Despite the availability of double-contrast roentgenograms and endoscopic studies detecting tumors of the cardia at an early stage is difficult. Compared with tumors located in more distal parts of the stomach, tumors located in the cardia are often far advanced at diagnosis, with deeper invasion of the gastric wall, and higher incidence of lymph node metastases or hepatic metastases [4].

Until now, there has been no accurate diagnostic technique to predict the extension of the disease in patients with proximal third gastric carcinoma. Stage of the disease is often underestimated because local infiltration and nodal metastases are hard to identify resulting in a down-staging with a poor prognosis [11]. Both computerized tomographic scan and laparoscopy combined with laparoscopic ultrasonography has limited value in estimating the extent of the disease [12,13]. In 9 of our 29 patients who underwent laparotomy, the disease was far more extended than was preoperatively suggested and no resection could be carried out. Even in a case of local disease, resecting proximal gastric tumors and obtaining sufficiently wide radial margins can be technically demanding. Furthermore, extended lymphadenectomy is usually not performed in Western countries because recent studies have shown increased morbidity without improved survival [14,15].

Although curative treatment in this study could not be achieved, patients who underwent a resection of the primary tumor had a significantly longer median survival than that of patients in whom the primary tumor could not be resected. This implicates that resection offers the most effective means of prolonging lifespan of patients with proximal third gastric carcinoma [16]. Resection of the primary lesion should be undertaken unless there are contraindications to surgery [10].

Carcinoma of the proximal third part of the stomach continues to present at advanced stages at diagnosis with

an overall dismal prognosis. Our results confirm the concepts of Siewert et al. [5], that the carcinoma located in the cardia has a dismal survival and must be seen as a separate entity of gastric carcinoma. Improved survival may be achieved by detecting the disease at an earlier stage by means of new image modalities and innovative therapies.

REFERENCES

1. Blot WJ, Defessa SS, Kneller RW, Fraumeni JF: Rising incidence of adenocarcinoma of the esophagus and gastric cardia. *JAMA* 1991;265:1287-1289.
2. Craanen ME, Dekker W, Blok P, et al.: Time trends in gastric carcinoma: Changing patterns of type and location. *Am J Gastroenterol* 1992;87:572-579.
3. Fuchs CS, Mayer RJ: Gastric carcinoma. *N Engl J Med* 1995;333:32-41.
4. Ohno S, Tomisaki S, Oiwa H, et al.: Clinicopathologic characteristics and outcome of adenocarcinoma of the human gastric cardia in comparison with carcinoma of other regions of the stomach. *J Am Coll Surg* 1995;180:577-582.
5. Siewert JR, Böttcher K, Stein HJ, et al.: Problem of proximal third gastric carcinoma. *World J Surg* 1995;19:523-531.
6. Antonioli DA, Cady B: Changing aspects of gastric adenocarcinoma. *N Engl J Med* 1984;310:1538.
7. Kampschoer GH, Nakajima T, Velde van de CJ: Changing patterns in gastric adenocarcinoma. *Br J Surg* 1989;76:914-916.
8. Holscher AH, Bollschweiler E, Siewert JR: Carcinoma of the gastric cardia. *Ann Chir Gynaecol* 1995;84:185-192.
9. Millikan KW, Silverstein J, Hart V, et al.: A 15-year review of esophagectomy for carcinoma of the esophagus and cardia. *Arch Surg* 1995;130:617-624.
10. Walker MJ: A review of carcinoma of the stomach at a tertiary care referral hospital. *Am J Surg* 1996;172:75-78.
11. Bunt AM, Hermans J, van de Velde C, et al.: Lymph node retrieval in a randomized trial on western-type versus Japanese-type surgery in gastric cancer. *J Clin Oncol* 1996;14:2289-2294.
12. Bemelman WA, van Delden OM, van Lanschot J, et al.: Laparoscopy and laparoscopic ultrasonography in staging of carcinoma of the esophagus and gastric cardia. *J Am Coll Surg* 1995;181:421-425.
13. Molloy RG, McCourtney JS, Anderson JR: Laparoscopy in the management of patients with cancer of the gastric cardia and oesophagus. *Br J Surg* 1995;82:352-354.
14. Dent DM, Madden MV, Price SK: Randomized comparison of R₁ and R₂ gastrectomy for gastric carcinoma. *Br J Surg* 1988;75:110-112.
15. Robertson CS, Chung SC, Woods SD: A prospective randomized trial comparing R₁ subtotal gastrectomy with R₁ total gastrectomy for antral cancer. *Ann Surg* 1994;200:176-182.
16. Douglass HO, Nava HR: Gastric adenocarcinoma—management of the primary disease. *Semin Oncol* 1985;12:32-45.